UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,116	12/22/1999	RODNEY CLAYCOMB	DDX13	5798

20686 7590 08/12/2005

DORSEY & WHITNEY, LLP
INTELLECTUAL PROPERTY DEPARTMENT
370 SEVENTEENTH STREET
SUITE 4700
DENVER, CO 80202-5647

EXAMINER	
NATNITHITHADHA, NAVIN	
ART UNIT	**PAPER NUMBER**
3736	

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/470,116	CLAYCOMB ET AL.	
	Examiner	Art Unit	
	Navin Natnithithadha	3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1, 11, and 13 have been amended. Claims 20 and 21 have been cancelled. Claims 1-19 are pending.

2. The objections to claims 11, 20, and 21 are WITHDRAWN in view of the Amendment.

Drawings

3. The drawings were received on 01 August 2005. These drawings are acceptable.

Response to Arguments

4. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blair, US 4,895,165 A, in view of Starzl et al, US 5,542,431 A.

Claims 1 and 2: Blair discloses an electronic estrus detection device for determining estrus in an animal (see abstract and col. 1, lines 57-66), comprising:

a "housing" (detector) 10 for "releasable placement on an animal" (see figs. 1(a) and 1(b), and see col. 2, lines 64-66); and

a "self-contained electronic means" (processing unit) 2 "operatively associated with" the housing 10 (see fig. 2 and col. 2, lines 61-66) for "detecting and processing information relating to number, duration, and frequency of mounts on the animal," and wherein the electronic means 2 electronically compares detected and processed information on the animal to a predetermined pre-set threshold for number, duration, and frequency of mounts" that indicates estrus, wherein only when the detected and processed information for said animal exceeds the pre-set threshold" will an indication of estrus be expressed by the electronic means (see col. 1, line 57 to col. 2, line 3; col. 3, lines 21-32 and 39-46; col. 3, line 62 to col. 4, line 5; and col. 5, lines 18-21).

In column 1, line 66 to column 2, line 3, Blair states the following:

> The user also programs indicating means to display a desired threshold representative of a logical function known as a mount-second index (MSI), which is a function of summed times and summed mounts. The indicating means also indicates the time elapsed since the first satisfaction of the user-programmed MSI.

Therefore, the claimed function of "compares detected and processed information on the animal to a predetermined pre-set threshold" is electronically performed by the processing unit in using the MSI.

Blair does not teach the electronic means 2 performs the above processing for determining "optimum breeding time" and the determining function of claim 2. However,

as well-known in the art and stated in the Applicant's Specification on page 3, "optimum breeding time", also known as "peak estrus", is considered to be a specific time interval between the onset of estrus and the end of estrus (usually 4-12 hours after the onset of estrus). Starz teaches an "electronic estrus detection device" (computer module) 42 for processing data, such as that obtained by Blair, to specifically determine "optimum breeding time". Starz discloses the following (see col. 20, line 61 to col. 21, line 30):

> With respect to the processing of heat mount data for making a determination regarding breeding time for a subject cow, the following description is provided, together with an explanation based on an example of heat mount data illustrated in FIG. 20. In connection with conducting the analysis in this embodiment, an onset of estrus is first detected by determining whether a predetermined threshold was met or occurred. This predetermined threshold relates to an onset of estrus based on a predetermined minimum number of heat mounts occurring within a predetermined time interval. If this predetermined threshold is met, further analysis is conducted to obtain a peak estrus value that is useful in determining an optimal, or at least desirable, breeding time. Based on investigation and studies, it has been concluded that such a predetermined threshold falls within the range of at least three heat mounts within about four hours and four heat mounts within at least about three hours. If this predetermined threshold is not met, the subsequent analysis is not performed. However, when the predetermined threshold is satisfied, further analysis is conducted to determine a peak estrus value (PEV). In that regard, it has been noted that the distribution of mounting behavior within estrus, as determined by using the predetermined threshold, appears to fit a substantially symmetrical distribution, with peak estrus centrally located at the time of peak mounting behavior. In one embodiment, because such mounting behavior is symmetrical, the mean mounting behavior is found at the time average of the heat mounts. If there are N mounts at times T(i), the peak estrus value would occur at a time: $T_{PEV} = ET(i)/N$.
>
> In a preferred embodiment, with it being known that the longest and most significant mounts will occur at peak estrus, when the estrus hormones are expressed at their highest levels, this average can be weighted according to the duration of the mounts. If there are N mounts of durations D(i) occurring at times T(i), the peak estrus occurs at time: $T_{PEV} = E[T(i)*D(i)]/ED(i)$.

Additionally, Starz teaches the "electronic means" 42 "processes information to determine if the duration of the mounts meet a preset threshold of time and if a preset

number of the mounts occur within a predetermined period of time" (see col. 20, line 66 to col. 21, line 14, and col. 21, lines 21-30). Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Blair's processing unit 2 to further electronically determine optimum breeding time, i.e. peak estrus, as taught by Starz in order to provide an enhanced detection of estrus and provide successful insemination of the animal (see Starz, col. 1, lines 20-22, and col. 2, lines 38-39).

Claims 3-5 and 7-10: Blair teaches the electronic means includes: a "microprocessor" (processing unit) 2 (see col. 2, lines 64-66), a "battery" (see col. 3, lines 2-3), a "pressure sensitive switch" (tapeswitch) 1 (see col. 2, lines 61-62), a "visible display means" (see col. 2, lines 52-53), "LED" 30, and a "reset means" (reset switch) 3 (see col. 2, line 67 to col. 3, line 2). The display 4 and display 7 is capable of indicating "mount count and hours elapsed since a first mount of sufficient amount of time exceed a pre-set threshold of time".

Claim 6: Blair does not teach the "electronic means further calculates and indicates suspect estrus and confirmed estrus". However, Starzl teaches an electronic means indicates suspect estrus (identifying the onset of estrus) and confirmed estrus (determining peak value) (see col. 4, lines 44-59). It would have been obvious for one of ordinary skill in the art to modify Blair's device with Starzl because Blair suggest in column 5, lines 48-50 that the device can be easily adapted to different applications, such as indicating "suspect estrus" (onset of estrus), "confirmed estrus" (peak value),

and "optimum time to breed" from the data obtained, by merely making slight changes to the electronic means (circuit) and indicating means in Blair's device.

Claims 11, 12, and 14: Starzl teaches the "pre-set threshold for number and frequency of mounts is three mounts that occur within a four hour time period" (see col. 21, lines 31-53), the "pre-set threshold for number, duration, and frequency of mounts is three mounts that last at least three seconds each that occur within a four hour time period" (see col. 21, lines 31-53), and "optimum breeding time is a predetermined range of time from the first of said preset number of said mounts meeting said preset threshold and occurring within said predetermined period of time" (see col. 21, lines 4-30). It would have been obvious for one of ordinary skill in the art to modify Blair's device with Starzl because Blair suggest in column 5, lines 48-50 that the device can be easily adapted to different applications, such as indicating "suspect estrus" (onset of estrus), "confirmed estrus" (peak value), and "optimum time to breed" from the data obtained, by merely making slight changes to the electronic means (circuit) and indicating means in Blair's device.

Claims 13, 16, and 17: Blair teaches the indicating means comprises LED's 30 (see fig. 6). Blair does not teach the LED's indicating "optimum time to breed". However, Starzl teaches indicating suspect estrus, confirmed estrus and optimum time to breed (see col. 4, lines 44-67). It would have been obvious for one of ordinary skill in the art to modify Blair's device with Starzl because Blair suggest in column 5, lines 48-50 that the device can be easily adapted to different applications, such as indicating "suspect estrus" (onset of estrus), "confirmed estrus" (peak value), and "optimum time to breed"

from the data obtained, by merely making slight changes to the electronic means (circuit) and indicating means in Blair's device.

Claim 15: Blair teaches the indicating means 30 located on the rear of the housing and comprises at least one LED (see fig. 6).

Claims 18 and 19: Starzl teaches the preset threshold for mounting and the preset number of mounts for a period of time for peak estrus (see col. 21, lines 7-14 and 31-42). It would have been obvious for one of ordinary skill in the art to modify Blair's device with Starzl because Blair suggest in column 5, lines 48-50 that the device can be easily adapted to different applications, such as indicating "suspect estrus" (onset of estrus), "confirmed estrus" (peak value), and "optimum time to breed" from the data obtained, by merely making slight changes to the electronic means (circuit) and indicating means in Blair's device.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Navin Natnithithadha whose telephone number is (571) 272-4732. The examiner can normally be reached on Monday-Friday, 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Navin Natnithithadha
Patent Examiner
GAU 3736
10 August 2005